

Aberrant Right Subclavian Artery And Common Carotid Trunk

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A 25 year old woman presented with headache and posterior circulation ischemic strokes. Non-invasive workup demonstrated bilateral distal vertebral artery dissections. The patient underwent a cerebral angiogram for further assessment. An aortic arch injection was performed due to following a challenging supra-aortic vessel catheterization (Figure-1) demonstrating an aberrant right subclavian artery and common carotid trunk.

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A left aortic arch with an aberrant right subclavian artery is one of the most frequent anatomical variations of the aortic arch. This anomaly has been reported in about 0.5% of the general population.¹ Furthermore, in up to 20-30% of these cases there is an associated common carotid trunk^{2,3} as shown in our case. Less frequent is the association of a common subclavian trunk.⁴

The third and fourth pairs of primitive aortic arches in the embryo build up the aortic arch system. The third pair gives rise to both carotid arteries, initially with a common trunk. The persistence of this stage explains a common origin variant. An aberrant right subclavian artery occurs when the right fourth arch and the proximal right dorsal aorta abnormally regress. The right subclavian artery then



Figure-1:Anterior-posterior angiographic view of the aortic arch. Note the aberrant origin of the right subclavian artery and the common origin of both carotid arteries. LCCA; left common carotid artery. RCCA; right common carotid artery. RSA; right subclavian artery. LSA; left subclavian artery. LVA; left vertebral artery. RVA; right vertebral artery.

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develops from the right seventh intersegmental artery and the distal right dorsal aorta.⁴ These variants are often asymptomatic and treatment is not needed. When upper gastrointestinal or respiratory complaints are present due to compression by the aberrant vessels, surgery may be of benefit. The relationship between this aortic arch aberrancy and primary arterial diseases like dissection is unknown.

In neurointerventional procedures, awareness of these anatomical variations reduce fluoroscopic time and minimize contrast medium use.

References

1. Edwards JE. Malformations of the aortic arch system manifested as vascular rings. *Lab Invest* 1953;2:56-75.
2. Klinkhamer AC. A berrant right subclavian artery. Clinical and roentgenologic aspects. *Am J Roentgenol Radium Ther Nucl Med* 1966;97:438-446.
3. Tsai IC, Tzeng WS, Lee T, et al. Vertebral and carotid artery anomalies in patients with aberrant right subclavian arteries. *Pediatr Radiol* 2007;37:1007-1012.
4. Poultsides GA, Lolis ED, Vasquez J, Drezner AD, Venieratos D. Common origins of carotid and subclavian arterial systems: report of a rare aortic arch variant. *Ann Vasc Surg* 2004;18:597-600.